

I/We claim:

1. A fiber mat faced gypsum board made by
  - (1) contacting a gypsum slurry for forming a set gypsum core with
  - (2) a non-coated side of a pre-coated fiber mat, wherein the fiber mat has a thickness of between 0.02 and 0.045 inch and has a coating on a side opposite the non-coated side, said coating comprising a combination of (i) a mineral pigment, (ii) an organic binder and optionally (iii) an inorganic binder, the coating extending from a surface of said side opposite into said fiber mat a distance between about 30 and 50 percent of said thickness and having a microporosity which allows air to flow through and water to evaporate through said pre-coated mat from the gypsum core during preparation of the board,
  - (3) wherein the contacting causes said gypsum slurry to penetrate into the non-coated side and through interstices of the fiber mat to fill said interstices with gypsum and form a bond between said gypsum and said coating, and
  - (4) allowing the gypsum slurry to harden to form said set gypsum core, wherein the set gypsum core in a region near the bond has at least 17 percent combined water.
2. The board of claim 1 wherein the organic binder is a hydrophobic, UV resistant polymer latex.
3. The board of claim 2 wherein said mat contains glass fibers nominally about 10 to 16 microns in diameter.
4. The board of claim 3 in which said mat, in the absence of said coating, has a basis weight of 1 to 3 pounds per 100 square feet.
5. The board of claim 1 having a gypsum core density of 40 to 55 pounds per cubic foot.

6. The board of claim 1 wherein the coating weighs about 30 to 100 pounds per 1000 square feet of mat.

7. The board of claim 6 wherein the mineral pigment comprises from about 75 to 99 weight percent of the coating, the inorganic binder comprises from about 0 to 20 weight percent of the coating and the organic binder comprises from about 1 to 17 weight percent of the coating.

8. The board of claim 7 wherein the organic binder is a hydrophobic, UV resistant polymer latex.

9. The board of claim 8 wherein the mineral pigment comprises from about 83 to 95 weight percent of the coating, the inorganic binder comprises from about 0 to 10 weight percent of the coating and the hydrophobic, UV resistant polymer latex binder comprises from about 1 to 12 weight percent of the coating.

10. The board of claim 9 wherein said coating was applied to a surface of the fiber mat as an aqueous coating composition and dried to form said pre-coated mat.

11. The board of claim 10 wherein said aqueous coating composition includes about 0.1 to about 5 wt. % of one or more additives selected from the group consisting of a thickener, dispersant, colorant, defoaming agent and preservative.

12. The board of claim 11 in which said fiber mat, in the absence of said coating, has a basis weight of 1 to 3 pounds per 100 square feet.

13. The board of claim 10 wherein the amount of said water-resistant additive is at least about 0.2 wt. %.

14. The board of claim 13 wherein the amount of said water-resistant additive is about 0.3 to about 10 wt. %.

15. The board of claim 14 wherein said additive is selected from the group consisting of a wax emulsion, a wax-asphalt emulsion, poly(vinyl alcohol), a polysiloxane, a silicate and mixtures thereof.

16. The board of claim 8 wherein the hydrophobic, UV resistant polymer latex adhesive binder consists essentially of a (meth)acrylic or (meth)acrylate polymer or a (meth)acrylic or (meth)acrylate copolymer.

17. The board of claim 16 wherein said one of the fibrous mats consists essentially of glass fibers and the other fibrous mat consists essentially of a blend of glass fibers and synthetic fibers.

18. The gypsum board of claim 2 wherein the mineral pigment comprises from about 75 to 99 weight percent of the coating, the inorganic adhesive binder comprises from about 0 to 20 weight percent of the coating and the hydrophobic, UV resistant polymer latex adhesive binder comprises from about 1 to 17 weight percent of the coating.

19. The gypsum board of claim 18 wherein the mineral pigment comprises from about 83 to 95 weight percent of the coating, the inorganic adhesive binder comprises from about 0 to 10 weight percent of the coating and the hydrophobic, UV resistant polymer latex adhesive binder comprises from about 1 to 12 weight percent of the coating.

20. The gypsum board of claim 18, or 19 wherein the hydrophobic, UV resistant polymer latex adhesive binder of said combination consists essentially of a (meth)acrylic or (meth)acrylate polymer or a (meth)acrylic or (meth)acrylate copolymer.